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(71) Applicant(s)
Rossway Dowd Limited
(Incorporated in the United Kingdom)
114 Summer Road, Erdington, Birmingham, B23 6DY,
United Kingdom

(72) Inventor(s)
Brendan Martin Dowd
Eugene Joseph Dowd

(74) Agent and/or Address for Service
Forrester Ketley & Co
Chamberlain House, Paradise Place, BIRMINGHAM,
B3 3HP, United Kingdom

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GB 2235718 A US 5664740 A

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(54) Abstract Title
Safety device for use in roofing operations

(57) A safety device for attachment to a working platform (12) which is movable along, and is transverse to, members such as purlins (10,11) of a roof. The safety device comprising frame means (20,21) adapted to extend generally parallel to the purlins (10,11) beneath the platform (12) and to at least one side thereof; frame attachment means engageable with respective side members of the platform; and barrier means (22-25) disposed at said at least one side of the platform and lying, in use, beneath a plane containing the upper surfaces of said purlins. The frame being designed, in use, to resist falling from at least one side of the platform.

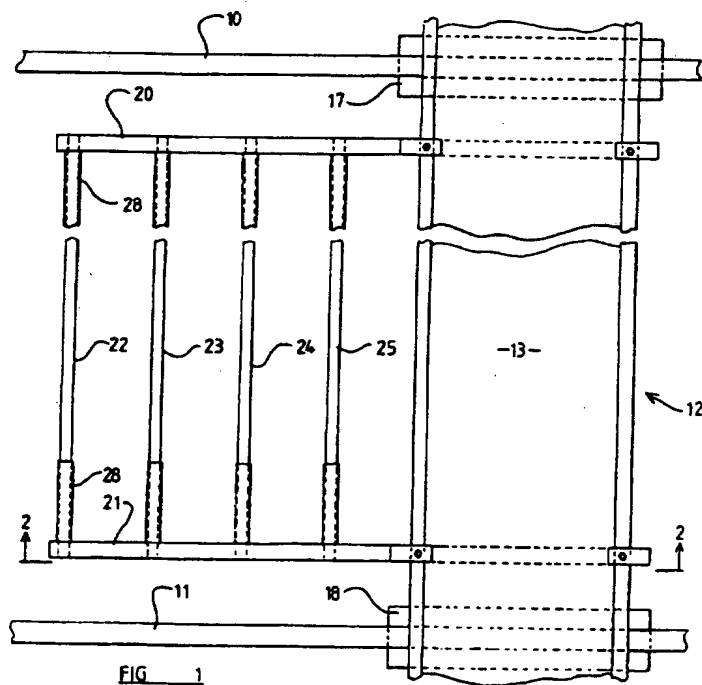
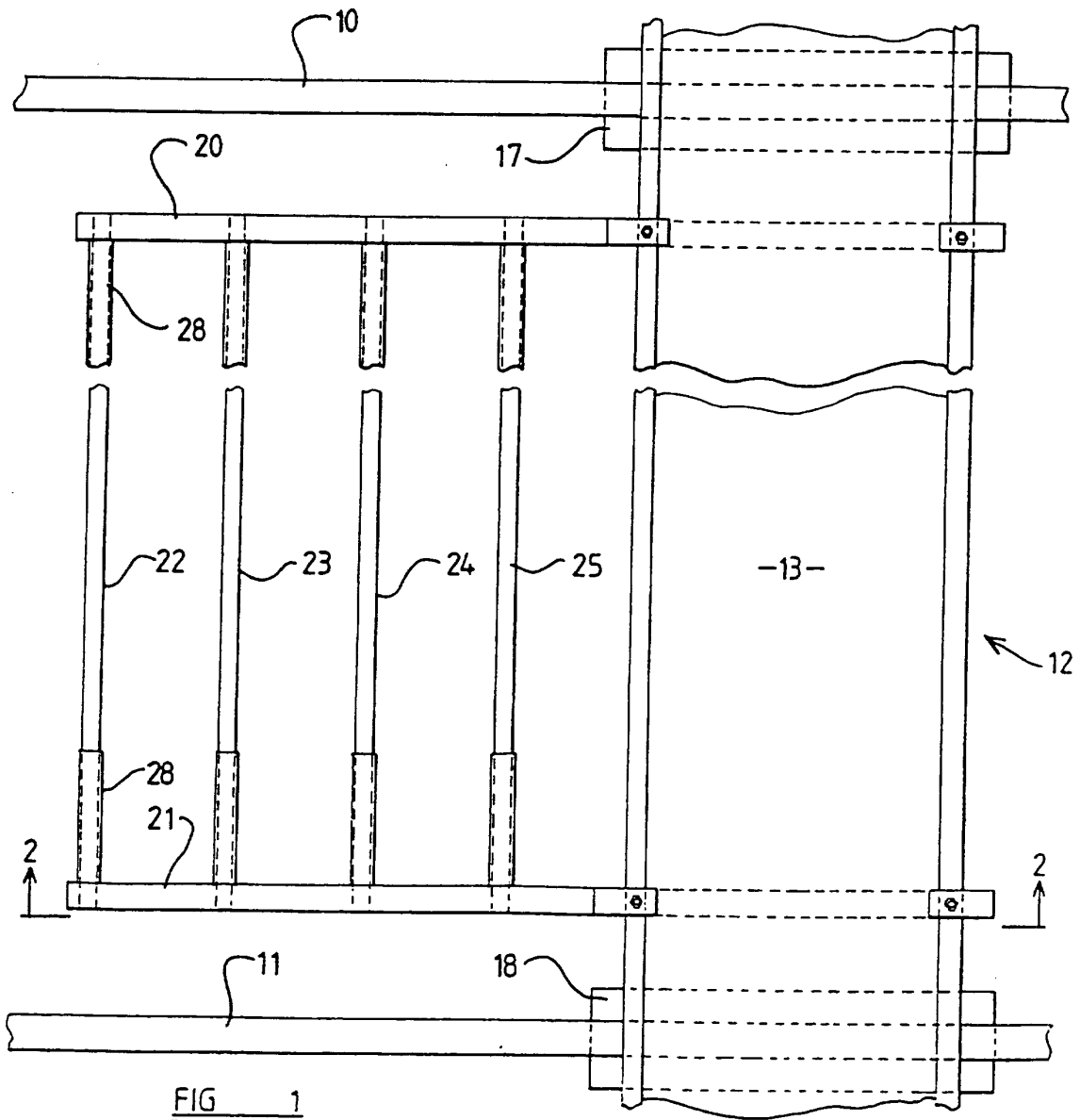
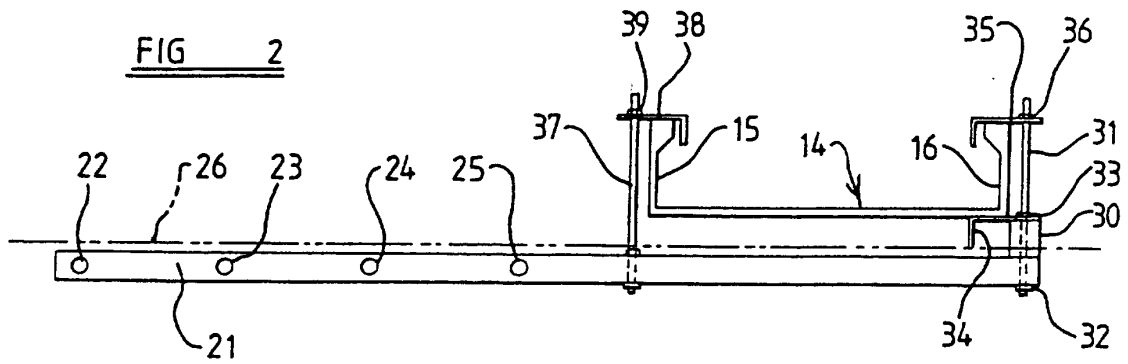


FIG 2



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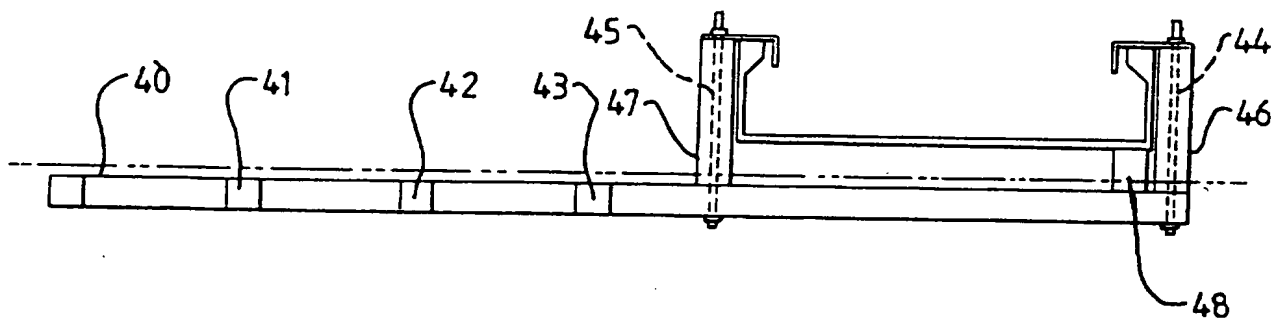


FIG 3

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PATENTS ACT 1977

Title: Safety Device for use in Roofing Operations or the like

Description of Invention

This invention relates to a safety device, for attachment to a working platform for a roof or the like, for preventing the falling of workers therefrom in use thereof as described hereafter.

The invention has been devised in relation to a working platform of a type which is characteristically used in constructing the roof of a relatively large building such as a factory or warehouse having a steel frame or other structural framework. Such a roof characteristically comprises a number of purlins which extend lengthwise of the roof in spaced parallel relation to one another and strips of roofing material laid on the purlins extending transversely thereto, i.e. up and down the roof. Usually such roofs are constructed one strip at a time from a working platform which extends transversely to the purlins and is supported therefrom by wheeled trolley devices so that the platform can be moved along the roof as the strips are laid. After a strip has been laid on the purlins and secured thereto, the platform has to be moved away therefrom by slightly more than the width of a strip in order to leave room for the next succeeding strip to be positioned. This creates a gap between the platform and the previously-laid strip, which is dangerous as a roofing worker can fall through it. For safety, roofing workers have used safety lines by which they are tethered to the working platform, but this inhibits their movement, and thus their use might be resisted. Further, there are difficulties in safely attaching safety lines to a working platform.

It has been proposed that a safety net or the like can be attached to a roof working platform, but a net is not wholly satisfactory. To attach a safety net to the underside of a complete roof area itself introduces an installation risk, and installed nets can restrict the ability to load the roof which has further safety implications.

Accordingly it is an object of the present invention to provide an improved safety device for use with a roof working platform as aforesaid.

According to the present invention, we provide a safety device for attachment to a working platform which is movable along and extends transversely of members such as purlins of a roof, the safety device comprising frame means including parts adapted to extend generally parallel to the purlins beneath the platform and beyond the platform at at least one side thereof; respective attachment means engageable with respective side members of the platform for attaching the device to the platform; and barrier means disposed at said at least one side of the platform beneath a plane containing upper surfaces of said purlins, for resisting falling between said purlins at said at least one side of the platform.

Preferably the attachment means is arranged to extend upwardly from each said frame part at each side of the platform to engage said side members.

The frame means may comprise two elongate frame members disposed in spaced substantially parallel relationship to one another and constituting said parts of the frame means. The barrier means may be afforded by portions of said frame members extending beyond the platform at one side thereof, and a number of transverse frame members extending therebetween.

The transverse frame members may be detachable from said parallel frame members.

Preferably each of the attachment means comprises a member adapted to hook over a side member of the platform and to be tightened into engagement therewith, e.g. by the use of screw-threaded fastening means.

Conveniently the frame members and transverse members of the device are elongate tubular members of an aluminium alloy, so that the device as a whole is of light weight, consistent with adequate strength.

These and other features and advantages of the invention will now be described by way of example with reference to the accompanying drawings, of which:

FIGURE 1 is a plan view of a device in accordance with the invention, attached to a working platform on a roof;

FIGURE 2 is a partly sectioned elevation, in the direction indicated by the line 2-2 on Figure 1;

FIGURE 3 is a view as Figure 2, of a modified embodiment of the device.

Referring firstly to Figure 1 of the drawings, purlins of a roof, extending substantially parallel to one another, are indicated at 10, 11. A working platform indicated generally at 12 comprises a walkway 13 with a deck 14 and upstanding side portions 15, 16. The platform is supported on the purlins 10, 11, by wheeled trolleys 17, 18, respectively, enabling the platform to be moved lengthwise of the purlins in the course of construction of a roof by fixing successive sheets of roofing material to the purlins, such roofing material sheet extending transversely to the purlins. It will be appreciated that for a large building, the roof will comprise more than just the two purlins illustrated: normally the platform will extend over all the purlins of such a roof.

A safety device in accordance with the invention comprises two main frame members 20, 21, which are elongate substantially rigid structural members, e.g. of hollow square cross sectional shape and preferably of an

aluminium alloy for relatively light weight. The members 20, 21, extend substantially parallel to one another and to the purlins beneath the platform 13 and there beyond by a substantial distance at the side thereof, which is the left side with reference to the drawings, and by a small distance at the opposite side thereof. The parts of the frame members 20, 21, extending a substantial distance beyond the side of the platform are joined by four spaced parallel transverse members 22 to 25 to define a barrier structure which is able to bear the weight of a workman if applied thereto intentionally or inadvertently. It will be noted that the barrier structure lies beneath the plane of the upper surfaces of the purlins 10, 11, which plane is indicated at 26 in Figure 2. The transverse members 22 to 25 are of aluminium alloy tube of circular cross-sectional shape. The transverse members are received in apertures in the frame members 20, 21 and extend through reinforcing sleeves 28 which are attached to the frame members 20, 21 by welding. The transverse members are secured by bolts extending through the sleeves 28. Thus a high degree of security is achieved in the connections between the transverse frame members and the frame members 20, 21: there is the bolted connection, the welding of the sleeves 28, and the reception thereof in the hollow main frame members.

The spacing of the purlins of a roof may vary: for example they may be closer together where roof loading is greater (eaves, valley, etc.). In this case transverse frame members of different length may be provided and connected to the main frame members as required.

Each of the frame members 20, 21 is secured to the platform 13 at each side of the platform. As shown in Figure 2, at the free end of the member 21 extending slightly beyond the upstanding wall 16 of the platform, the member 21 has an upstand 30 of tube as the member 21, and a screw threaded bar 31 extends upwardly through the upstand and the end of the member 21. Nuts 32, 33, secure the bar 31 in position and nut 33 also secures to the top of the

upstand 30 an L-shaped steel cleat member 34 which abuts the underside of the deck 14. A similar cleat member 35 hooks over the top of the upstanding side wall 16 of the platform and is retained by a nut 36 at the top of the bar 30, tightening of the nut 36 providing for clamping of the upstanding side wall 16 between the cleat members 34, 35.

At the opposite side of the platform the member 21 carries an upstanding threaded bar 37, and a cleat member 38 at the upper end of such bar and retained by a nut 39 hooked over the top of the upstanding side wall 15 of the platform 13.

The above described method of attachment of the safety device to the roof working platform 13 is adaptable in the sense of being able to accommodate, without structural modification, minor dimensional changes in the platform, and in particular, it can be ensured that the barrier structure of the safety device lies beneath the plane 26 of the tops of the purlins of the roof, enabling a roof to be constructed as first described herein whilst substantially preventing a worker from falling through a gap created when the working platform is moved away from a laid roofing sheet in order to enable the next-succeeding roofing sheet to be laid.

The method of attachment of the safety device to the working platform enables such attachment to be carried out while the platform is in situ on a roof structure, working from the platform. Safe installation and dismantling are important under such conditions. To aid the dismantling process after a roof has been constructed, it is envisaged that the arrangement of bar 31 cleat 35 and nut 36 may provide a swivelling connection to enable the device to swivel downwardly thereabout (anti-clockwise with reference to the drawings) after removal of nuts 39 and cleats 38, whereafter the device can be removed upwardly on the right-hand side of the platform, as viewed in the drawings.

Referring now to Figure 3 of the drawings, this in a view corresponding to Figure 2 shows an embodiment of safety device which in principle, is the same as that shown in Figure 2 but has some minor structural differences. The first of such differences is that the transverse members of the barrier structure of the device, as shown at 40 to 43, are of square section tube rather than round section tube. Threaded bars 44, 45, corresponding to the bars 31, 37, are disposed within tubular upstands 46, 47, which extend to the top of the side walls of the platform. Instead of the cleat member 34 abutting the underside of a platform, there is an upstanding packing piece 48. Otherwise, however, the safety device is as above described.

A safety device in accordance with the invention is usable other than for roof construction, for example for the erection of pre-cast floor panels at a height. When installing such panels which are considered as "fragile", the device affords protection until they are fixed and become of "non-fragile" status. When fixing non-fragile panels, a danger exists until they are fixed and the device gives protection under such circumstances.

The features disclosed in the foregoing description, the following claims, or the accompanying drawings expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, or a class or group of substances or compositions, as appropriate, may, separately or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

CLAIMS

1. A safety device for attachment to a working platform which is movable along and extends transversely of members such as purlins of a roof, the safety device comprising frame means including parts adapted to extend generally parallel to the purlins beneath the platform and beyond the platform at at least one side thereof; respective attachment means engageable with respective side members of the platform for attaching the device to the platform; and barrier means disposed at said at least one side of the platform and lying, in use, beneath a plane containing upper surfaces of said purlins, for resisting falling between said purlins at said at least one side of the platform.
 2. A device according to Claim 1 wherein the attachment means is arranged to extend upwardly, in use, from each said frame part at each side of the platform to engage said side members.
 3. A device according to Claim 1 or Claim 2 wherein the frame means comprises two elongate frame members disposed in spaced substantially parallel relationship to one another and constituting said parts of the frame means.
 4. A device according to Claim 3 wherein the barrier means is afforded by portions of said frame members extending beyond the platform at said one side thereof, and a number of transverse frame members extending therebetween.
 5. A device according to Claim 4 wherein the transverse frame members are detachable from said parallel frame members.
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6. A device according to Claim 2 or any claim appendant thereto, wherein each of the attachment means comprises a member adapted to hook over a side member of the platform and to be tightened into engagement therewith.
7. A device according to Claim 6 comprising screw-threaded fastening means for effecting said tightening.
8. A device according to any one of the preceding claims wherein the frame members and transverse members of the device are elongate tubular members of an aluminium alloy.
9. A device substantially as hereinbefore described with reference to the accompanying drawings.
10. A working platform movable along and extending transversely of purlins of a roof and having a safety device according to any one of the preceding claims attached thereto, said frame means extending generally parallel to the purlins beneath the platform and beyond at at least one side thereof, said attachment means being engaged with said members of the platform, and said barrier means lying beneath a plane containing upper surfaces of the purlins.
11. A working platform having a safety device attached thereto, substantially as hereinbefore described with reference to the accompanying drawings.
12. Any novel feature or novel combination of features described herein and/or in the accompanying drawings.



Application No: GB 9720401.0
Claims searched: 1 - 11

Examiner: P. Gardiner
Date of search: 28 January 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.Q): E1S: SJ, SN

Int CI (Ed.6): E04D, E04G

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2235718 A ANTHONY GALLIMORE (e.g. Fig's. 1 & 2)	1,2,3,10
X	US 5664740 OWENS CORNING FIBERGLAS TECH (US) (e.g. Fig's. 1,2 & 3)	1,2,10

X Document indicating lack of novelty or inventive step
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E Patent document published on or after, but with priority date earlier than, the filing date of this application.